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## ANTHOPHORID BEES IN THE COLLECTION OF THE CALIFORNIA ACADEMY OF SCIENCES

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### **Centris atripes ferrisi** Cockerell, new subspecies

Female. Resembles *C. atripes* Mocsary, but hair of thorax paler, of middle tibiae on outer side very pale, nearly white, of hind tibiae externally very pale brownish-grey, the large apical tuft very broadly dark brown; apex of abdomen with hair more or less pallid. Easily known from *C. rhodopus* Ckll. by the narrower face and dark legs.

La Paz, Lower California, June 29, 1919, 2 ♀ (G. F. Ferris).

### CENTRIS TRICHOSOMA Cockerell

This is to be added to the fauna of California, four males having been taken by E. P. Van Duzee at Coachella, May 16, 1917.

### EMPHOROPSIS MURINA Cockerell

Both sexes from San Francisco, California, April 20 (Van Dyke). This is certainly a species distinct from *E. murihirta*, to which I originally referred it as a subspecies. But for the fact that the male clypeus is entirely creamy white except for a rather narrow stripe on either lateral margin and the usual spots, instead of having a "subtrefoil mark," this might be referred to *H. miserabilis* (Cresson). Possibly *murina* and *miserabilis* are forms of one species, but this can only be determined by a larger series showing intergradation. The female has the face and scape entirely black. Unfortunately, the exact type-locality of *H. miserabilis* is unknown, but Fowler collected what he regarded as this species at San Francisco.

### EMPHOROPSIS DEPRESSA (Fowler)

Nothing had been heard of this species since Fowler published it in 1899, but a female before me was collected by E. C. Van Dyke in the hills back of Oakland, April 16, 1911. The

species is easily known by the depressed tawny hair on the abdomen.

EMPHOROPSIS INTERSPERSA Cockerell

Two males, Mokelumne Hill, California, April (Blaisdell). Previously known only from a specimen labeled "California" without other data. These specimens differ from the type in having long white hair on the first ventral abdominal segment, and in one specimen white hair at the sides of segments 3 and 4. In one specimen the scape is all black; in the other it has a small white mark near base. The specimen with entirely black scape has the lateral face-marks deeply incised above, and is the one with the most white hair on abdomen beneath. The species is evidently variable, but the specimens must certainly be referred to *E. interspersa*. There is no light mark on mandibles.

CLISODON SYRINGÆ (Cockerell)

This was described in 1898 from males collected by Kincaid at Olympia, Washington, and has not been reported since. I have before me numerous specimens collected by Dr. E. C. Van Dyke at Meadow Valley, Plumas County, California (altitude 3500-4000 feet); a male June 8, 1924, females June 5 to 22, 1924. The female, hitherto unknown, differs from *C. terminalis* (Cresson) by the abundant black hair, that of the pleura being all black to black with a broad white band in front. The abdomen is black-haired on segments 2 to 4; legs black-haired with shining white hairs anteriorly on hind tibiæ and base of basitarsi; cheeks with black hairs.

It would be possible to regard this insect as a peculiar melanic race of *C. terminalis*, and as the latter is itself a race of the European *C. furcatus* (Panzer), the name would then be *C. furcatus syringæ*. There is, however, a similar form, *Clisodon norvegicus* (*Megilla furcata* var. *norvegica* Nylander) found in Norway and Lapland, which has generally been treated as a race of *C. furcatus*, but Strand has given apparently good reasons for considering it as a distinct species. The independent development of a melanic *Clisodon* in two regions so remote is a matter of interest.

ANTHOPHORA TEXANA Cresson

A female from Santa Monica, California, presented by F. C.

Clark. By the rufous tegulæ this falls with *A. texana*, but the separation of this from *A. californica* Cresson is uncertain.

ANTHOPHORA SODALIS Cresson

Female from Fremont National Forest, Klamath County, Oregon, June 18, 1922. Altitude, 5000 feet (Van Dyke). New to Oregon.

ANTHOPHORA WASHINGTONI Cockerell

Female from Atascadero, San Luis Obispo County, California, April 26, 1919 (Van Duzee).

ANTHOPHORA IGNAVA Cresson

Female: Lagunitas, Marin County, California, April 24, (Van Dyke).

ANTHOPHORA PACIFICA Cresson

Males: Lagunitas, Marin County, California, March 9, (Van Dyke); Mill Valley, Marin County, California, March 4 (Van Duzee). This is presumably the male of *A. ignava* as Fowler indicated, but biological observations are desirable.

*Anthophora aterrima* Cockerell, new species

Female (type): Length about 14 mm., anterior wing 11 mm.; black with entirely black hair, except that in certain lights a part of the hair on underside of abdomen shines reddish-golden, and there is a little pale hair at apex of middle tibiæ on outer side; tegulæ black; wings dilute brownish; mandibles bidentate.

Male less robust; hair nearly all black, white on face, long on upper part; on thorax all black varying to broadly pale reddish anteriorly; hind basitarsi with a strong thorn-like tooth, strongly bulbous basally. Clypeus, subclypeal band, space between clypeus and eye (concave above), labrum (except margin and spots), mark on base of mandibles and scape in front, cream-color. Third antennal joint short. The abdomen has a pair of widely separated apical spines, the interval between them broadly rounded.

Type, female, No. 1576, Mus. Calif. Acad. Sci., collected by Dr. E. C. Van Dyke, in June, 1924, at Meadow Valley, Plumas County, California, at 3500 to 4000 feet altitude. Paratypes, two males taken at same place, June 5 to 22, 1924.

Nearest to *A. pernigra* Cresson, from Nevada, but that has the fifth abdominal segment above covered with bright orange-fulvous hair. Possibly *A. aterrima* is a race of *pernigra*, which is known from a single female. It is remarkable that Meadow

Valley produces melanic forms of *Anthophora* and *Clisodon*. Do other insects (e. g., *Lepidoptera*) of that locality show melanic tendencies?

ANTHOPHORA STANFORDIANA Cockerell

Male: Shasta County, California, June 26 (J. A. Kusche). The pale hair on thorax and first two segments of abdomen is much lighter, less fulvous, than in typical specimens.

ANTHOPHORA URBANA Cresson

Female: Needles, California, December 5, 1921 (J. A. Kusche). Peculiar for the almost total absence of dark hair on thorax above, only a little showing on scutellum, but part of the thorax is denuded. The abdominal bands are very light and the hind margin of the segments broadly whitish.

SUBGENUS MICRANTHOPHORA Cockerell

***Anthophora nigrītula* Cockerell, new species**

Female. Length about 8 mm.; black with pale grey hair; on vertex, mesothorax (except margins) and disc of scutellum it is black; on thorax anteriorly is a transverse band of erect black hairs; broad lower margin of clypeus (not sending any projection upward), narrow supraclypeal band, labrum (except margin and the usual spots) and large patch on base of mandibles, all pale yellow; eyes bluish-green; antennæ dark, the flagellum obscure reddish beneath; cheeks with long white hair; tegulæ dark, with pallid margins; wings faintly brownish, nervures dark; spurs pale ferruginous; hair on inner side of hind tarsi black; abdomen covered with appressed pale grey tomentum, broadly bare at base of second segment except at sides; apical triangular area of fifth segment dark brown, rather obscure.

Type, female, No. 1575, Mus. Calif. Acad. Sci., taken by E. P. Van Duzee, July 18, 1919, altitude 7000 feet, at Huntington Lake, Fresno County, California.

In my key (*Trans. Am. Ent. Soc.*, xxxii, pp. 66) this runs nearest to *A. anstrutheri* Ckll.; but is much smaller with pubescence differing in many details, and the labrum conspicuously shorter, more truncate. The marginal cell is also shorter. The short pale labrum and other characters readily distinguish it from *A. curta* Provancher.

ANTHOPHORA CURTA Provancher

Male: Poway, San Diego County, California, April 2, (Blaisdell).

## ANTHOPHORA FLEXIPES Cresson

Male: Huntington Lake, California, 7000 feet, July 8, 1919 (Van Duzee). Female. Strawberry Valley, El Dorado County, California, August 14 (Van Dyke).

## ANTHOPHORA ANSTRUTHERI Cockerell

Female: Millbrae, San Mateo County, California, September 1 (Van Dyke).

## XENOGLLOSSA PATRICIA ANGUSTIOR Cockerell

Female: Sierra Madre, Los Angeles County, California (J. I. Carlson).

## XENOGLLOSSA ANGELICA Cockerell

Near Lodi, San Joaquin County, California, August (Blaisdell).

## DASIAPIS OCHRACEA Cockerell

Male: San Diego, California (Blaisdell). Described from New Mexico.

## DIADASIA NIGRIFRONS (Cresson)

Male: San Diego, California, April 19 (Blaisdell).

**Diadasia australis mimetica** Cockerell, new subspecies

Female. Length, 12-12.5 mm.; flagellum very obscure reddish beneath; thorax above with bright fox-red hair; tegulæ very dark, nearly black; wings greyish; second cubital cell narrow, oblique, parallel-sided, receiving recurrent nervure at about the beginning of its last third; third cubital cell longer than first, narrowed more than half to marginal; scopa of hind legs tawny reddish; hind spur strongly curved at end; first abdominal segment with pale ochreous hair, but no distinct bands; segments 2 to 4 with very sharply defined fulvous bands, only slightly narrowed sublaterally, the portion before the bands very black, with short black hair; fifth segment with long fulvous hair, greyish-chocolate at apex.

Type, female, No. 1577, Mus. Calif. Acad. Sci., taken by E. P. Van Duzee, May 16, 1919, on Santa Cruz Island, California. Paratypes, two females, same data.

Perhaps to be considered a distinct species, *D. mimetica*, but evidently derived from the *D. australis* stock. It has an extraordinary superficial resemblance to the Mexican *Ptilothrix sumichrasti* (Cresson), but is easily separated by the venation.

## DIADASIA CRASSICAUDA Cockerell

Male: Poway, San Diego County, California, May 9 (Blaisdell). Differs from the type by the strongly ochreous tint of the pubescence.

*Diadasia blaisdelli* Cockerell, new species

Female. Length about 10.5 mm.; robust, black, covered with warm ochreous pubescence, becoming white beneath; face broad; eyes distinctly converging below; mandibles light ferruginous in middle; clypeus dull, somewhat shining toward apex, with coarse irregular punctures; flagellum dusky red beneath; mesothorax dull, without evident punctures, hairy all over; tegulæ large, rather pale dull reddish; wings dusky hyaline, stigma ferruginous, nervures fuscous; second cubital cell strongly narrowed above, receiving recurrent nervure not far from end; third cubital longer than first; small joints of tarsi clear ferruginous; scopa of hind legs very pale, ochreous-tinted; hair on inner side of hind basitarsi bright ferruginous; abdomen with long pale hair at base, otherwise densely covered dorsally with appressed yellowish-fulvous hair, bright ferruginous at end of fifth segment; ventral segments with double bands, the marginal one very pale, the one just before it consisting of light red hair.

Type, female, No. 1578, Mus. Calif. Acad. Sci., collected by F. E. Blaisdell, May 3, 1885, at Poway, San Diego County, California.

This cannot be the female of *D. crassicauda* because the marginal cell is conspicuously shorter and proportionately broader than in that species, and the stigma is larger. The second cubital cell is also differently shaped. In my key (Amer. Naturalist, xxxix, p. 742) it runs to *Dasiapis ochracea*, but is really quite distinct, differing by the hair on abdomen not so dense, the red color at end of fifth segment, the much longer hind knee-plate, the thicker and darker nervures, and the second cubital cell more contracted above. The eyes are narrower than in *D. ochracea*. When the male is known this species may have to be transferred to *Dasiapis*.

From *Diadasia laticauda* Ckll. this species is easily known by the dull clypeus.

## DIADASIA BITUBERCULATA (Cresson)

Male: Sobre Vista, Sonoma County, California, May 12 (J. A. Kusche).

## TETRALONIA LATA (Provancher)

Female: Hills back of Oakland, California, April 30 (Van Dyke).

## TETRALONIA ROBERTSONI Cockerell

Female: Mill Valley, Marin County, California, April 21 (Van Duzee). *T. robertsoni* was described from Washington, D. C., but Baker took a specimen, which I could not separate from it, at Claremont, California. We now have another from Mill Valley. However, except for the absence of white hair on the abdomen (and I can see very minute traces of white at sides of third and fourth segments) the insect resembles *T. lata*. It is apparently what Fowler considered to be *T. acerba* (Cresson), of which Cresson states that the white hair on abdomen may be obsolete, but the dark wings distinguish it from true *T. acerba* from Nevada.

Where *T. robertsoni* flies in the Atlantic coast region there is no *T. lata*; it is possible that the Pacific Coast "*robertsoni*" is to be separated and is in fact a melanic form of *T. lata*. It is also possible that *T. lata* is a coast race of *T. acerba*. These questions must be settled by observers in California.

## TETRALONIA ATRIVENTRIS (Smith)

Female: Park City, Utah, July 2, 1922 (Van Duzee). A species of the Eastern States, unexpected in Utah, but apparently the Utah insect is quite the same.

**Melissodes calloleuca** Cockerell, new species

Female. Length about 11 mm.; anterior wing nearly 9 mm.; hair of head and thorax above silky white, but posterior three-fifths of mesothorax and disc of scutellum bare, highly polished, with scattered punctures, the posterior middle of mesothorax almost without punctures; eyes bluish-green; facial quadrangle broader than long; clypeus rugose, shining and sparsely punctured above; flagellum, except at base, bright ferruginous beneath; cheeks with long white hair; tegulae dark reddish with a tuft of pale hair; pleurae with pale hair; wings brownish hyaline, stigma ferruginous, nervures fuscous; anterior and middle legs with brown hair, that on middle tibiae more or less pallid on outer side; scopa of hind legs white, but rusty black on inner side of hind basitarsi; abdomen with three brilliant white hair-bands on segments 2 to 4, those on 3 and 4 broad and alike, that on 2 more or less failing in middle; dark parts of abdomen with short black hair, on apex of fifth segment and all of sixth

seal-brown; first segment with hind margin rufous; venter with dark brown hair.

Type, female, No. 1579, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 12, 1922, at Saltair, Utah. Paratypes: three females, same data as type and one female, Saltair, June 29, 1922. Very similar to *M. sphaeralcea* Ckll., but easily separated by the dark hair on inner side of hind basitarsi, and pure white abdominal bands, as well as the thoracic pubescence. In my key (with MS additions) it runs to the vicinity of *M. lavata* Ckll. ined., but is smaller and certainly distinct.\*

In the published key *M. lavata* runs to the vicinity of *M. blakei* Ckll. and *M. mizeæ* Ckll., but is distinguished by the white hair of head and thorax above, and other characters.

### **Melissodes metenua** Cockerell, new species

Female. Length about 9 mm., anterior wing, 7.5 mm.; black, with mainly black hair; facial quadrangle slightly broader than long; eyes bluish-green; hair of head coarse, entirely black; mandibles stout, with no inner tooth; clypeus dullish; strongly and densely punctured; supraclypeal area polished, impunctate in middle; front shining; flagellum dusky ferruginous beneath except at base; thorax with black hair, but dull white along anterior border of mesothorax and on metathorax posteriorly; mesothorax and scutellum shining, with weak punctures; tegulæ black; wings dusky, nervures dark; stigma very short, dark reddish; second cubital cell broad, receiving recurrent nervure not far from end; legs with mainly black hair, but middle tibiæ have a large wedge-shaped patch of white tomentum behind, and the long scopa on outer face of hind tibiæ is creamy-white; spurs brown; abdomen shining, with black hair at base; hind margins of first two segments rufescent; short oblique lines of white hair at sides of second segment; third and fourth segments with transverse bands of dull white hair; apex with dark chocolate hair. The tuft of hair on tegulæ is black.

Type, female, No. 1580, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 30, 1918, at Colestin, Jackson County, Oregon. The name means black hair in a Malay dialect. Resembles *M. hymenoxidis* Ckll., but has a narrower face and much more black hair.

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\* *Melissodes lavata* was found by Dr. Lutz at Wray, Colorado, in August. The female is about 13 mm. long, anterior wings 10.3 mm.; head and thorax with long, white hair, wholly without black or fulvous; flagellum beyond second joint chestnut-red beneath; abdomen with pure white hair bands on segments 2 to 4, on 2 and 3 rather narrow, on 4 broad and entire. Differs from *M. glenwoodensis* Ckll. by the broader face, hair on outer side of middle tarsi light, brown tomentum covering concealed parts of abdominal segments, etc.